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1 MR. KAMBER: Object to the form.

2 THE WITNESS: Again, I don't know enough
3 about the dexopt tool to know if it was installed.

4 Q. BY MR. MUINO: Do you have any reason to
5 think that it wasn't installed on the HTC Magic? 10:05:12

6 MR. KAMBER: Object to the form.

7 THE WITNESS: I don't know enough about it to
8 know one way or another.

9 Q. BY MR. MUINO: Was the Zygote process
10 installed on the HTC Magic? 10:05:23

11 MR. KAMBER: Object to the form.

12 THE WITNESS: The Zygote process -- a process
13 itself wasn't installed. A process runs, but, yes, my
14 understanding was the Zygote process was used or ran on
15 that device. 10:05:37

16 Q. BY MR. MUINO: Did HTC make any changes to
17 the Dalvik Virtual Machine on the HTC Magic?

18 A. I don't know.

19 Q. Was that something that you or your team
20 looked at in the final version of the Magic? 10:05:52

21 A. Well, we don't get the source code back after
22 HTC makes changes, so it's not something we can look at.

23 Q. Do you get back a sample of the final phone?

24 A. We do.

25 Q. And does your -- do you perform any tests on 10:06:09

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1 that device?

2 A. We do. Most of these tests are black box
3 tests, so we -- on Android handsets, when we get them
4 back, we ensure that the Google applications run
5 correctly. We do some limited compatibility testing, but 10:06:26
6 most of the tests are actually done by the handset
7 manufacturer themselves. We provide a suite of tests
8 that they're able to run on their own and just submit a
9 report to Google.

10 Q. Did HTC make any changes to the dexopt tool 10:06:53
11 on the HTC Magic?

12 A. I don't know.

13 Q. Other than the prototype device -- HTC
14 prototype device that you testified to before, the HTC
15 Dream and the HTC Magic, were there any other HTC Android 10:07:09
16 devices that your team worked with HTC on?

17 A. Yes.

18 (Bruce Baber enters deposition room.)

19 Q. BY MR. MUINO: Which ones?

20 A. And HTC shipped a lot of them. 10:07:26

21 Q. And at this point, Mr. Brady, I would ask
22 that you just list all the ones that you remember.

23 A. In 2009 I believe the HTC Hero, the HTC
24 Tattoo. This may have been -- again, it may have been
25 somewhat in 2010. The -- in that time frame, those are 10:07:44

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1 the Zygote process at start up, yes.

2 Q. BY MR. MUINO: Did HTC make any changes to
3 the Dalvik Virtual Machine on the HTC Hero?

4 A. I have no idea.

5 Q. Do you have any reason one way or the other 10:09:56
6 to believe that they made any changes to the Dalvik
7 Virtual Machine?

8 A. I have no knowledge of either way. They made
9 extensive changes to the platform, covering virtually all
10 components. So it would not surprise me if they did make 10:10:12
11 changes to the Dalvik Virtual Machine.

12 Q. What changes to the HTC Hero did HTC make to
13 the Android code on the HTC here?

14 MR. KAMBER: Object to the form, asked and
15 answered. 10:10:32

16 THE WITNESS: As mentioned earlier, extensive
17 changes all over the platform. They changed the entire
18 user interface. They changed the way memory was
19 allocated, the way disk space was allocated. They
20 changed the way processes were started and the priorities 10:10:47
21 of different processes.

22 They changed the browser. They changed --
23 they added several new features to the device. They
24 changed the entire networking stack. That's -- and
25 again, those are changes -- those are only the changes we 10:11:10

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1 know about, because they needed some assistance with
2 those.

3 Q. BY MR. MUINO: None of those are changes,
4 though, to the Dalvik Virtual Machine installed on the
5 device, as far as you're aware? 10:11:21

6 A. None of those --

7 MR. KAMBER: Object to the form.

8 THE WITNESS: None of those changes listed,
9 correct. Again, we -- as we don't get the source code
10 back from HTC, we have no way of knowing really what they 10:11:34
11 change on the platform unless they specifically tell us.

12 Q. BY MR. MUINO: Did HTC specifically tell you
13 of any changes made to the -- to the Hero, to the Dalvik
14 Virtual Machine in the Hero?

15 A. To the Dalvik Virtual Machine? 10:11:57

16 Q. Uh-huh.

17 A. I don't remember whether or not HTC told us
18 of any changes specifically to the Dalvik Virtual
19 Machine.

20 Q. I'm scrolling back, Mr. Brady, to find the 10:12:13
21 last HTC device that you mentioned, but can you just tell
22 me what it was?

23 A. I think it was the HTC Tattoo.

24 Q. Tattoo. Okay.

25 With respect to the HTC Tattoo, was the 10:12:25

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1 MR. KAMBER: Object to the form.

2 THE WITNESS: I believe that the Zygote
3 process was capable of running on the HTC Tattoo.

4 Q. BY MR. MUINO: To your knowledge, did HTC
5 make any changes to the Dalvik Virtual Machine installed 10:13:52
6 on the HTC Tattoo?

7 MR. KAMBER: Object to the form.

8 THE WITNESS: I don't know one way or the
9 other if HTC made any changes to the Dalvik Virtual
10 Machine. 10:14:07

11 Q. BY MR. MUINO: Same question with respect to
12 the dexopt tool.

13 A. I don't know.

14 Q. Same question with respect to the Zygote
15 process. 10:14:20

16 MR. KAMBER: Same objection.

17 THE WITNESS: I don't remember specifically.

18 Q. BY MR. MUINO: Okay. I hadn't anticipated
19 this line of questioning would go quite so long, so I'm
20 going to show you, actually, the 30(b)(6) deposition 10:14:32
21 notice before I go on with more questioning in this area.
22 I'm going to mark this as Exhibit 256.

23 (Exhibit PX256 was marked for
24 identification.)

25 Q. BY MR. MUINO: Mr. Brady, have you seen this 10:15:11

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1 pretty extensive modification.

2 Q. Are you aware of any changes that Samsung
3 made to the Dalvik Virtual Machine installed on the
4 Galaxy S?

5 A. I don't know -- I don't know if changes were 10:36:30
6 installed on the Galaxy S. We don't really have a way of
7 knowing, because I don't believe Samsung told us. I do
8 know that Samsung had a team of engineers working on
9 changes to the Dalvik Virtual Machine.

10 Q. You don't know what those changes were, 10:36:50
11 though, if any?

12 A. Again, it was -- they were working on the way
13 bytecode was interpreted or compiled on the device. So
14 they worked on an ahead of time compiler, adjustment time
15 compiler, but I don't know -- I don't know the specifics 10:37:06
16 of those changes, and I don't know if those changes
17 shipped on any devices. I don't believe anyone at Google
18 would know that.

19 Q. Are you aware that Samsung made any changes
20 to the dexopt tool installed on the Galaxy S? 10:37:21

21 A. I don't know if the dexopt tool was installed
22 on the Galaxy S or not, and I don't know if Samsung made
23 any changes to that. No, I don't.

24 Q. Do you know of any changes that Samsung made
25 to the Zygote process on the Galaxy S? 10:37:39

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1 A. I don't recall specific changes to that. But
2 I don't know.

3 Q. Let's move to the Galaxy S2. Was the Android
4 platform installed on the Galaxy S2?

5 A. I believe it was. 10:38:00

6 Q. The work that your team did in connection
7 with the Galaxy S2, was it the same as you've described
8 before?

9 A. Yes.

10 MR. KAMBER: Objection to form. 10:38:07

11 Q. BY MR. MUINO: Was the Dalvik Virtual Machine
12 installed on the Galaxy S2?

13 MR. KAMBER: Object to the form.

14 THE WITNESS: I have no reason to believe
15 that it was not. 10:38:16

16 Q. BY MR. MUINO: Do you know whether Samsung
17 made any changes to the Dalvik Virtual Machine on the
18 Galaxy S2?

19 A. I believe they did. They likely must have,
20 but I don't know the specifics. 10:38:27

21 Q. And what's the basis for your understanding
22 on that?

23 A. The Galaxy S2 is a dual-core processor. And
24 the version of Android that was running on the Galaxy
25 S2 -- or the version of Android that Google had open 10:38:45

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1 sourced and Samsung had used was not designed for dual
2 core processors and so would have required some
3 significant changes to the entire operating system,
4 including the Dalvik Virtual Machine, I believe, to be
5 able to operate correctly on those devices.

10:39:07

6 Q. Was the dexopt tool installed on the Galaxy
7 S2?

8 MR. KAMBER: Objection to form.

9 THE WITNESS: I don't know.

10 Q. BY MR. MUINO: Was the Zygote process
11 capability installed on Galaxy S2?

10:39:19

12 MR. KAMBER: Objection. Form.

13 THE WITNESS: I have no reason to believe it
14 would not be.

15 Q. BY MR. MUINO: Do you know if Samsung made
16 any changes to the Zygote process capability installed on
17 the Galaxy S2?

10:39:28

18 A. I don't know.

19 Q. The next phone that you mentioned is Nexus S.
20 Was that a joint project between Google and Samsung to
21 develop that phone?

10:39:45

22 A. It was.

23 Q. And was that phone -- strike that.

24 What work did Google do in connection with
25 developing the Nexus S?

10:40:02

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1 question.

2 Q. BY MR. MUINO: Were there any differences
3 between the Dalvik Virtual Machine as installed on the
4 Nexus S and the Dalvik Virtual Machine that's
5 available -- that Google makes available open source on 10:41:19
6 the Git repository?

7 MR. KAMBER: Object to form.

8 THE WITNESS: I don't know specifically.

9 Q. BY MR. MUINO: Are you aware of any such
10 changes? 10:41:28

11 A. I'm not aware of changes.

12 Q. Do you know if there were any changes made to
13 the Zygote process capability between what was installed
14 on the Nexus S and what's available Open Source through
15 the Git repository? 10:41:42

16 A. I'm not aware of any changes, but I don't
17 know.

18 Q. What work did Samsung do in connection with
19 the Nexus S?

20 A. On the Nexus S it's running on a proprietary 10:42:06
21 Samsung silicon chip set, and so Samsung did extensive
22 work to -- to -- how to put it? Writing drivers, porting
23 Android, essentially, to their chip set or making their
24 chip set work with Android. I believe they also wrote
25 the interaction with the radio, so the radio interface 10:42:36

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1 layer. I'm -- so basically, you know, that level of
2 work, getting it to run on their hardware.

3 Q. The Android code installed on Nexus S was
4 entirely Google's work; is that right?

5 MR. KAMBER: Object to the form. 10:42:57

6 THE WITNESS: No. As I'm saying, Samsung did
7 work to be able to, you know, support Android on their
8 platform. The -- I would say it's fair to characterize
9 the bulk of the Android code -- it depends on what you
10 classify as Android. But the Android code, say, that was 10:43:15
11 shared in Open Source, would be -- most of that would
12 have been provided by Google and some other third parties
13 outside of Google and Samsung.

14 Q. BY MR. MUINO: Did Samsung make any changes
15 to the Dalvik Virtual Machine installed on the Nexus S? 10:43:33

16 A. None that I'm aware of.

17 Q. Did Samsung make any changes to the Zygote
18 process capability on the Nexus S?

19 A. Not that I'm aware of.

20 Q. With respect to the dexopt tool, are you 10:43:48
21 aware that the dexopt tool is installed on any Android
22 phones?

23 A. Again --

24 MR. KAMBER: Object to the form.

25 THE WITNESS: I don't know enough about the 10:44:10

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1 Q. And 2.3 is Gingerbread?

2 A. Yes.

3 Q. Does the Tab run the Honeycomb platform or
4 version?

5 A. It does not currently. 10:45:36

6 Q. What work did Google do in connection with
7 the Galaxy Tab?

8 A. Similar to the work we did on the other
9 devices.

10 Q. Is the Dalvik Virtual Machine installed on 10:45:52
11 the Galaxy Tab?

12 MR. KAMBER: Objection to form.

13 THE WITNESS: I have -- I have no way of
14 knowing specifically, but I have no reason to believe
15 it's not. 10:46:05

16 Q. BY MR. MUINO: Did Samsung make any changes
17 to the Dalvik Virtual Machine, to your knowledge, on the
18 Galaxy Tab?

19 A. I don't know.

20 Q. Is the dexopt tool installed on the Galaxy 10:46:18
21 Tab?

22 MR. KAMBER: Objection to form.

23 THE WITNESS: I don't know.

24 Q. BY MR. MUINO: I'll stop asking that
25 question. 10:46:28

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1 code on Ally.

2 Q. What changes are you aware of?

3 A. I don't remember specifics. But very -- very
4 similar to -- to Samsung or HTC. They would be changing
5 many, many components in the system. 11:05:48

6 Q. Did LG change the Dalvik Virtual Machine

7 installed on the LG Ally?

8 A. Did they change -- I don't know.

9 Q. Did LG change the Zygote process capability

10 installed on the Ally? 11:06:11

11 A. I don't know.

12 Q. With respect to the LG Optimus, you said
13 there were lots of variants of the Optimus?

14 A. Yes.

15 Q. What kind of device is the Optimus? 11:06:27

16 A. The Optimus One or Optimus Z -- Optimus is a
17 brand name that LG uses. But there was a phone version
18 and then there was the Optimus pad, which is a -- a
19 tablet version.

20 Q. With respect to the phone version of the LG 11:06:46

21 Optimus, was the Android platform installed on the phone
22 version of the LG Optimus?

23 A. Some version of the Android platform from LG
24 was installed, yes.

25 Q. What work did Google do with LG on the LG 11:07:03

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1 Optimus phone?

2 A. Similar to all of the other devices.

3 Q. Is the Dalvik Virtual Machine installed on
4 the LG Optimus phone?

5 A. To the -- I don't know specifically, but to 11:07:18
6 the best of my knowledge, some -- like, the Android
7 platform, some version of the -- of a Dalvik Virtual
8 Machine from LG, yeah.

9 Q. Is the dexopt tool installed on the LG
10 Optimus phone? 11:07:32

11 MR. KAMBER: Object to the form.

12 THE WITNESS: I don't know specifically.

13 Q. BY MR. MUINO: Is the Zygote process
14 capability installed on the LG Optimus phone?

15 A. Similar to the platform in Dalvik, I would 11:07:41
16 assume some version of a Zygote process from LG is
17 installed on the phone.

18 Q. Are you aware of any changes that LG has made
19 to the Android code on the Optimus phone?

20 A. Again, similar to the Ally and others. 11:07:53
21 They -- yes, they made extensive changes.

22 Q. Do you know if LG made any changes to the
23 Dalvik Virtual Machine on the Optimus phone?

24 A. Again, similar to the Samsung Galaxy S II, on
25 some versions of the Optimus device they must have made 11:08:11

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1 changes. Because again, it -- some versions of those run
2 a dual-core processor, which the version of Android, as
3 provided in the Open Source Project, is not -- is not
4 written to support dual-core processors, so --

5 Q. Other than your awareness of the fact that 11:08:33
6 the phone has a dual-core processor, do you have any
7 specific basis for thinking that LG made any changes to
8 the Dalvik Virtual Machine on the Optimus phone?

9 A. Other than the fact that it has a dual-core
10 processor, my knowledge is when -- when Google was doing 11:08:50
11 work as part of the next release to support dual-core
12 processors, we did extensive work on the Dalvik Virtual
13 Machine -- the version of the Dalvik Virtual Machine that
14 we were working on.

15 And so my -- my understanding is that anyone 11:09:06
16 who wanted to run a Dalvik Virtual Machine on a dual-core
17 processor architecture would need to make these changes
18 to avoid some serious consequences.

19 (Mr. Baber leaves deposition room.)

20 Q. BY MR. MUINO: Did LG make any changes to the 11:09:31
21 Zygote process capability on the Optimus phone?

22 A. I don't know.

23 Q. Now, let's switch to the LG Optimus pad, the
24 tablet. Is Android installed on the Optimus pad?

25 A. Again, a version of Android from LG is 11:09:49

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1 installed on the Optimus pad.

2 Q. What work did Google do in connection with
3 the Optimus pad?

4 A. Again, similar to the other devices, we
5 worked with -- with LG to resolve any issues that they 11:10:04
6 would have had getting Android up and running and running
7 compatibility tests and things like that.

8 Q. Is the Dalvik Virtual Machine installed on
9 the Optimus pad?

10 MR. KAMBER: Objection to form. 11:10:20

11 THE WITNESS: Some version of the Dalvik
12 Virtual Machine from LG, yeah, I would say is installed.

13 Q. BY MR. MUINO: Is the dexopt tool installed
14 on the Optimus pad?

15 MR. KAMBER: Objection to form. 11:10:31

16 THE WITNESS: I don't know.

17 Q. BY MR. MUINO: Is the Zygote process
18 capability installed on the Optimus pad?

19 MR. KAMBER: Objection to form.

20 THE WITNESS: I would assume some version of 11:10:38
21 the Zygote or of a Zygote capability is installed. Some
22 version from LG.

23 Q. BY MR. MUINO: Do you know whether LG made
24 any modifications to the Dalvik Virtual Machine on the
25 Optimus pad? 11:10:55

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1 A. I do not know if they made any changes.

2 Q. Do you know if LG made any changes to the
3 Zygote process capability on the Optimus pad?

4 A. I do not know. Again, we don't get the
5 source code back for these devices. So looking from the 11:11:11
6 outside of a black box, it's nearly impossible to tell if
7 they made changes.

8 Q. Did LG ever tell you that they were not using
9 the Dalvik Virtual Machine on one or more of their
10 Android devices? 11:11:35

11 MR. KAMBER: Object to the form.

12 THE WITNESS: I don't recall that LG ever
13 told us they were not installing a Dalvik Virtual Machine
14 on their devices.

15 Q. BY MR. MUINO: Did HTC ever tell you that 11:11:47
16 they weren't using a Dalvik Virtual Machine on any of
17 their devices?

18 MR. KAMBER: Object to the form.

19 THE WITNESS: I don't recall HTC saying they
20 were not going to use a Dalvik Virtual Machine on their 11:11:56
21 devices.

22 Q. BY MR. MUINO: Did Samsung ever say that they
23 weren't going to use a Dalvik VM on any of their Android
24 devices?

25 MR. KAMBER: Object to the form. 11:12:04

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1 MR. KAMBER: Object to the form.

2 THE WITNESS: I don't know specifically, but
3 I would assume a Dalvik Virtual Machine -- a version of a
4 Dalvik Virtual Machine from Motorola is on those devices.

5 Q. BY MR. MUINO: What work did Google do in 11:14:19
6 connection with each of the Droid Cliq, DEX, Titanium,
7 Droid X, Droid 2, Droid 3 and Droid Pro devices?

8 MR. KAMBER: Object to the form.

9 THE WITNESS: On the Motorola Droid, we --
10 again, that was a lead device like Nexus S. So Google 11:14:39
11 worked more closely with Motorola to -- to develop a new
12 version of an Android platform, which Motorola then used
13 to preload on the Motorola Droid.

14 On the other devices, it was all similar to
15 as stated before, basic technical support and helping 11:15:02
16 them resolve any issues.

17 Q. BY MR. MUINO: Leaving aside the Droid -- the
18 lead device for a moment, with respect to the Cliq, DEX,
19 Titanium, Droid X, Droid 2, Droid 3 or Droid Pro devices,
20 did Motorola make any changes to the Dalvik Virtual
21 Machine on those devices?

22 MR. KAMBER: Objection to form.

23 THE WITNESS: I don't know if they made any
24 changes to the version of the Dalvik Virtual Machine that
25 they installed on those devices. 11:15:38

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1 Q. BY MR. MUINO: You don't have any reason to
2 believe that they did?

3 MR. KAMBER: Objection to form.

4 THE WITNESS: I have no knowledge one way or
5 the other. Most of our partners do make extensive 11:15:49
6 changes to the entire platform. So again, I wouldn't be
7 surprised if they did make changes.

8 Q. BY MR. MUINO: But you don't know that they
9 did?

10 MR. KAMBER: Objection to form, asked and 11:15:59
11 answered.

12 THE WITNESS: I don't know of specific
13 changes they made.

14 Q. BY MR. MUINO: With respect to the Cliq, DEX,
15 Titanium, Droid X, Droid 2, Droid 3 and Droid Pro 11:16:08
16 devices, do you know if Motorola made any changes to the
17 Zygote process capability on those devices?

18 MR. KAMBER: Objection to form.

19 THE WITNESS: I don't know one way or the
20 other whether they did. 11:16:26

21 Q. BY MR. MUINO: Going back now to the Droid
22 device, did Google develop the Android code for
23 installation on the Droid device?

24 MR. KAMBER: Objection. Form.

25 THE WITNESS: Android's a large operating 11:16:44

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1 system. And so the portions of the code in the Android
2 platform -- or the version that was installed on the
3 Motorola Droid, Google would have developed. And other
4 portions would have come from the Open Source community
5 for Motorola from, you know, other third parties.

11:17:01

6 Q. BY MR. MUINO: Does Google have the source
7 code -- the final source code that was installed on the
8 Droid phone as it went to market?

9 A. We don't have the entire source code. Again,
10 some portions of the system or -- of, you know, the
11 system as installed on these devices is provided in
12 binary form from third parties. And other portions we do
13 have the source code for.

11:17:21

14 Q. Okay. Google is aware that the Dalvik
15 Virtual Machine is certainly installed on the Droid
16 device?

11:17:45

17 MR. KAMBER: Objection to form.

18 THE WITNESS: A version of a Dalvik Virtual
19 Machine is installed on the Droid device.

20 Q. BY MR. MUINO: Did Motorola make any changes
21 to the Dalvik Virtual Machine installed on the Droid
22 device?

11:17:53

23 MR. KAMBER: Objection to form, asked and
24 answered.

25 THE WITNESS: I don't believe -- I don't

11:18:09

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1 know. Again, the Motorola Droid, and this device also,
2 was shipped under various names. It's also called the
3 Milestone and other things in various regions.

4 We -- Google has no way of knowing if they
5 made changes of really any component in the Android 11:18:23
6 platform for every one of those distributions.

7 For the one that we worked more closely with
8 them on in the U.S., I -- I do not believe they made
9 modifications.

10 Q. BY MR. MUINO: Did Motorola make any changes 11:18:43
11 to the Zygote process capability installed on the Droid
12 devices?

13 A. Same answer. But it's -- it's -- we have no
14 way of knowing on each specific skew if they made changes
15 or not. 11:19:02

16 Q. But you have no reason to believe that they
17 did?

18 MR. KAMBER: Objection to form.

19 THE WITNESS: I have no knowledge either way.

20 Q. BY MR. MUINO: I think you may have 11:19:21
21 previously testified that -- correct me if I'm wrong, if
22 you didn't -- that Google receives sample Android devices
23 from OEMs.

24 A. Yes, we do.

25 Q. What does -- what does Google do with those 11:19:33

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1 STATE OF CALIFORNIA) ss:
2 COUNTY OF MARIN)
3

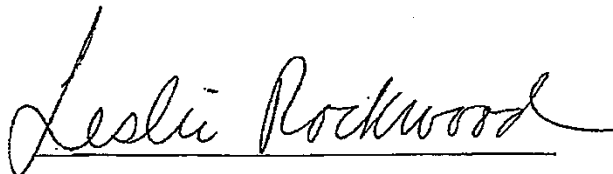
4 I, LESLIE ROCKWOOD, CSR No. 3462, do hereby
5 certify:

6 That the foregoing deposition testimony was
7 taken before me at the time and place therein set forth
8 and at which time the witness was administered the oath;

9 That testimony of the witness and all
10 objections made by counsel at the time of the examination
11 were recorded stenographically by me, and were thereafter
12 transcribed under my direction and supervision, and that
13 the foregoing pages contain a full, true and accurate
14 record of all proceedings and testimony to the best of my
15 skill and ability.

16 I further certify that I am neither counsel
17 for any party to said action, nor am I related to any
18 party to said action, nor am I in any way interested in
19 the outcome thereof.

20 IN WITNESS WHEREOF, I have subscribed my name
21 this 26th day of July, 2011.

22
23
24 

25 LESLIE ROCKWOOD, CSR. NO. 3462

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